

IN THE CLAIMS

Please cancel claims 1-33 without prejudice or disclaimer.

1-33. (Canceled)

34. (New) A method, comprising:

sensing intrinsic ventricular depolarizations, including QRS complexes, of a left ventricle and a right ventricle;

determining timing relationships between intrinsic ventricular depolarizations of the left and the right ventricle;

selecting one or more ventricular chambers in which to provide pacing pulses based on the timing relationship between intrinsic ventricular depolarizations of the left and the right ventricle;

providing pacing pulses to an atrium subsequent to sensing intrinsic ventricular depolarizations of the left ventricle and the right ventricle;

re-sensing intrinsic ventricular depolarizations of the left ventricle and the right ventricle;

re-determining timing relationships between intrinsic ventricular depolarizations of the left and the right ventricle; and

re-selecting one or more ventricular chambers in which to provide pacing pulses based on the re-determined timing relationship between re-sensed intrinsic ventricular depolarizations of the left and the right ventricle.

35. (New) The method of claim 34, wherein determining and/or re-determining timing relationships between intrinsic ventricular depolarizations includes calculating a delay between a left ventricular and a right ventricular sensed intrinsic ventricular depolarization, and measuring a duration interval of one or more intrinsic ventricular depolarizations.

36. (New) The method of claim 35, wherein selecting and/or re-selecting one or more ventricular chambers includes suggesting pacing in the left ventricle when the duration interval

of the one or more intrinsic ventricular depolarizations is greater than or equal to a first threshold value and the delay between the left ventricular and the right ventricular sensed intrinsic ventricular depolarization is greater than a second threshold value.

37. (New) The method of claim 36, further comprising setting the first threshold value at 120 milliseconds and the second threshold value at zero (0).

38. (New) The method of claim 35, wherein selecting and/or re-selecting one or more ventricular chambers includes suggesting pacing in the left ventricle and the right ventricle when the duration interval of the one or more intrinsic ventricular depolarizations is greater than or equal to a first threshold value and the delay between the left ventricular and the right ventricular sensed intrinsic ventricular depolarizations is greater than a second threshold value.

39. (New) The method of claim 38, further comprising setting the first threshold value at 120 milliseconds and the second threshold value at zero (0).

40. (New) The method of claim 35, wherein selecting and/or re-selecting one or more ventricular chambers includes suggesting pacing in the right ventricle when the duration interval of one or more intrinsic ventricular depolarizations is greater than or equal to a first threshold value and the difference between the left ventricular and the right ventricular sensed intrinsic ventricular depolarizations is less than or equal to a second threshold value.

41. (New) The method of claim 40, further comprising setting the first threshold value at 120 milliseconds and the second threshold value at zero (0).

42. (New) The method of claim 34, wherein at least one of sensing and re-sensing intrinsic ventricular depolarizations occurs after a predetermined delay.

43. (New) An apparatus comprising:

a first cardiac lead including a first electrode, wherein the first electrode senses intrinsic ventricular depolarizations, including QRS complexes, of a left ventricle;

a second cardiac lead including a second electrode, wherein the second electrode senses intrinsic ventricular depolarizations of a right ventricle;

a left ventricular depolarization sensor in communication with the first cardiac lead;

a right ventricular depolarization sensor in communication with the second cardiac lead;

a means for determining a timing relationship between the intrinsic ventricular depolarizations of the left ventricle and the intrinsic ventricular depolarizations of the right ventricle, wherein the means for determining the timing relationship is in communication with the left and right ventricular depolarization sensors; and

a means for selecting one or more ventricular chambers in which to provide pacing pulses based on the timing relationship between intrinsic ventricular depolarizations of the right and the left ventricle, wherein the means for selecting one or more ventricular chambers is in communication with the means for determining the timing relationship.

44. (New) The apparatus of claim 43, wherein a medical device programmer includes the means for determining the timing relationship and the means for selecting one or more ventricular chambers.

45. (New) The apparatus of claim 44, wherein the medical device programmer is adapted to input a duration interval of one or more intrinsic ventricular depolarizations.

46. (New) The apparatus of claim 43, wherein an implantable medical device includes the means for determining the timing relationship and the means for selecting one or more ventricular chambers.

47. (New) The apparatus of claim 43, further comprising:
a first amplifier in communication between the first cardiac lead and the left ventricular depolarization sensor; and
a second amplifier in communication between the second cardiac lead and the right ventricular depolarization sensor.
48. (New) The apparatus of claim 43, wherein the means for determining the timing relationship detects peaks of the sensed intrinsic ventricular depolarizations and calculates the delay between the detected peaks.
49. (New) The apparatus of claim 43, wherein the first electrode is a first defibrillation electrode and the first cardiac lead includes a second defibrillation electrode spaced along the first cardiac lead so the first defibrillation electrode is positioned in the right ventricle when the second defibrillation electrode is positioned in the right atrium.
50. (New) The apparatus of claim 49, wherein the means for determining the timing relationship includes an intrinsic ventricular depolarization detector in communication with the first defibrillation electrode and the second defibrillation electrode, and the intrinsic ventricular depolarization detector calculates a duration interval of one or more intrinsic ventricular depolarizations.
51. (New) A method, comprising:
starting a predetermined delay after at least one of sensing an intrinsic electrogram of an atrium and providing pacing pulses to the atrium;
sensing intrinsic ventricular depolarizations, including QRS complexes, of a left ventricle and a right ventricle after the predetermined delay;
determining a timing relationship between intrinsic ventricular depolarizations of the left and the right ventricle; and
selecting one or more ventricular chambers in which to provide pacing pulses based on

the timing relationship between intrinsic ventricular depolarizations of the left and the right ventricle.

52. (New) The method of claim 51, further comprising determining a duration interval of one or more intrinsic ventricular depolarizations.

53. (New) The method of claim 52, wherein selecting one or more ventricular chambers in which to provide pacing pulses includes selecting based on the duration interval of the one or more intrinsic ventricular depolarizations and the timing relationship between the intrinsic ventricular depolarizations of the left and the right ventricle.

54. (New) The method of claim 51, further comprising storing results from at least the step of selecting one or more ventricular chambers in which to provide pacing pulses.

55. (New) A method comprising:

sensing intrinsic ventricular depolarizations, including QRS complexes, of a left ventricle and a right ventricle with at least a first electrode substantially adjacent to the left ventricle and a second electrode substantially adjacent to the right ventricle;

calculating a delay between a left ventricular and a right ventricular sensed intrinsic ventricular depolarizations;

measuring a duration interval of one or more intrinsic ventricular depolarizations;

selecting one or more ventricular chambers in which to provide pacing pulses based on the duration interval of the intrinsic ventricular depolarization and the delay between the left ventricular and the right ventricular sensed intrinsic ventricular depolarizations; and

providing pacing pulses to the one or more ventricular chambers selected with one or more of the first electrode and the second electrode.

56. (New) The method of claim 55, wherein sensing intrinsic ventricular depolarizations includes sensing intrinsic ventricular depolarizations between the first electrode and a third

electrode substantially adjacent to the left ventricle, and the second electrode and a fourth electrode substantially adjacent to the right ventricle.

57. (New) The method of claim 55, wherein sensing intrinsic ventricular depolarizations includes sensing intrinsic ventricular depolarizations between the first electrode and an implantable medical device housing, and the second electrode and the implantable medical device housing.

58. (New) The method of claim 55, wherein providing pacing pulses to the one or more ventricular chambers selected includes providing pacing pulses to the left ventricle between the first electrode and a third electrode substantially adjacent to the left ventricle.

59. (New) The method of claim 55, wherein providing pacing pulses to the one or more ventricular chambers selected includes providing pacing pulses to the right ventricle between the second electrode and a fourth electrode substantially adjacent to the right ventricle.

60. (New) The method of claim 55, wherein providing pacing pulses to the one or more ventricular chambers selected includes providing pacing pulses to the left ventricle between the first electrode and an implantable medical device housing.

61. (New) The method of claim 55, wherein providing pacing pulses to the one or more ventricular chambers selected includes providing pacing pulses to the right ventricle between the second electrode and an implantable medical device housing.

62. (New) The method of claim 55, wherein selecting one or more of the left ventricle and the right ventricle includes selecting the left ventricle when the duration interval of the one or more intrinsic ventricular depolarizations is greater than or equal to a first threshold value and the difference between the left ventricular and the right ventricular sensed intrinsic ventricular depolarizations is greater than a second threshold value.

63. (New) The method of claim 55, wherein selecting one or more of the left ventricle and the right ventricle includes selecting the left ventricle and the right ventricle when the duration interval of the one or more intrinsic ventricular depolarizations is greater than or equal to a first threshold value and the difference between the left ventricular and the right ventricular sensed intrinsic ventricular depolarizations is greater than a second threshold value.

64. (New) The method of claim 55, wherein selecting one or more of the left ventricle and the right ventricle includes selecting the right ventricle when the duration interval of one or more intrinsic ventricular depolarizations is greater than or equal to a first threshold value and the difference between the left ventricular and the right ventricular sensed intrinsic ventricular depolarizations is less than or equal to a second threshold value.